

BIRLA INDUSTRIAL & TECHNOLOGICAL MUSEUM
COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH
19A, GURUSADAY ROAD :: CALCUTTA-19



Curator-in-Charge - Shri S.K. Ghose

ANNUAL REPORT - 1968

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A. INTRODUCTION

Past history in brief

In the post-independence era in India, science and technology have been playing a vital role in the national uplift. An industrial and technological museum can contribute to the public understanding of scientific and technological developments, and thus bring science and technology within the grasp and knowledge of the common man. Such a museum can be one of the best means of communication of scientific knowledge to the community.

The need for such museums in India was felt for a long time. The Birla Industrial & Technological Museum, the first science museum in India, was opened to the public in May, 1959 with the following galleries :-

- (a) Metallurgy of Iron & Steel and Copper; (b) Petroleum;
- (c) Electricity; (d) Nuclear Physics; (e) Electronics;
- (f) Television; (g) Optics and Miscellaneous.

Subsequent addition of galleries

August, 1962 - Motive Power
March, 1963 - Communication
June, 1964 - Mining

Re-Organisation of galleries

May, 1962 - Television & Electronics
July, 1962 - Popular Science
November, 1964 - Petroleum
December, 1966 - Motive Power - thoroughly renovated and expanded.
October, 1967 - Nuclear Physics.

Mobile Science Museum :

It was in November, 1965 when the first mobile unit of the museum started functioning beyond its four walls. Later on more units were added to the fleet and the present strength is given below :

- a) number of units mounted on Museobuses - 3
- b) number of units transported by truck - 1
- c) number of units stationed in the regional science museums = - 4

Other Programmes

Various regular educational programmes started in the years given below :

- 1965 - Science Demonstration Lecture, annual special exhibition to celebrate the anniversary in May, competitive science seminar.
- 1966 - Creative Abilities Centre
- 1967 - Model making competition for school students.
- 1968 - Teachers Training Programme.

Regional Science Museum

The first regional museum was inaugurated in January, 1968 and the more were set up during 1968.

Museums Camp

The fifth All India Museums Camp organised by the Ministry of Education, Govt. of India was held in B.I.T.M. in November, 1967.

Progress made in the Calendar year 1968

1968 was a year of substantial progress for the museum. Besides development in the galleries of the museum, emphasis was laid on the extension services and this led to a greater co-ordination with the museum and other educational institutions. As a result, the museum recorded a visitors' attendance of 2,17,136 during the year 1968 - the maximum figure ever reached since its inauguration. The previous maximum figure was 2,16,441 in 1967. Besides this, 4,16,957 people, mostly students, attended the mobile science exhibitions, regional science museums, science demonstration lectures film festivals, etc. arranged by the museum in various places of West Bengal within a radius of 335 km. from Calcutta. 530 organised groups of students and scholars from different schools, colleges and universities of the country had, as usual, educational excursions to this museum. 445 film shows on scientific and technical subjects were also held in the museum auditorium and 181 film shows were held in rural areas.

During the year under report a new Mobile Science Exhibition unit, 'Light & Sight' was added to the mobile fleet run by the museum. In 1968 the museum held mobile science exhibitions in 167 places in the districts of Calcutta, Howrah, Hooghly, Burdwan, Nadia, 24-Parganas, Bankura, Purulia, Birbhum, Murshidabad and Midnapore in West Bengal.

The idea of setting up Regional Science Museums for long term in the districts of Midnapore, Purulia and Bankura materialised during the year.

A symposium on 'School Science - how it can be improved' was organised by the museum in one of its Regional Science Museums at Midnapore. District Educational Authorities and 22 science teachers including headmasters from different schools of Midnapore attended the symposium and they highly appreciated the educational activities of the museum in opening Regional Science Museums and Science Hobby Centres etc. in the district towns and rural schools.

Competitive Students' Science Seminars were organised in Calcutta and also in two Regional Science Museums in Midnapore and Purulia and the response was good. An important feature of the seminars was that the students from deep interior villages participated and won prizes in the seminars.

B.I.T.M. anniversary was celebrated during May, 1968 by drawing a programme which included, among others, an exhibition of remote control motor car which moved without driver with the help of transmitted radio signals, Children's art and science exhibition, Children's fair, Exhibition of a 'Robot' with electronic control, Puppets, magic and fun of science, recording of visitors voice on tape-recorders etc.

Apart from these, short term training facilities were extended to the science teachers of selected High and Higher Secondary Schools in and outside Calcutta.

Finally, to give wide publicity of the museum and its multifarious activities, the museum started publishing a bi-colour illustrated folder on its activities in two languages titled 'Programme of Events'. The first issue covered the period November 1 to December 31, 1968.

Among the important visitors during 1968 are Mr. G.P. Kozlov, Director, Polytechnic Museum, Moscow, Mr. Frank A. Taylor, Director, United States National Museum, Washington, Shri Dharma Vira, Governor of West Bengal, Mr. Francis Wattier, Secretary General of International Coordinating Committee for the Presentation of Science and Out of School Scientific Activities.

B. Objectives

The main objectives of the museum are :

- i) to portray the history of science and technology.
- ii) to create scientific awareness among the common people, and
- iii) to supplement science education in schools.

C. Museum Galleries

The present ten galleries in the museum are as follows :

- | | |
|-----------------------------|-------------------|
| 1. Nuclear Physics | 2. Motive Power |
| 3. Popular Science | 4. Mining |
| 5. Copper | 6. Petroleum |
| 7. Iron & Steel | 8. Electricity |
| 9. Television & Electronics | 10. Communication |

All the galleries have suitable static and working models, animated posters, dioramas and charts. Visitors are allowed to operate many of the exhibits. The museum has also its own staff of Guide Lecturers who demonstrate the exhibits to the visitors.

Following additions and alternations were made in the museum galleries in 1968 :

Mining Gallery

A very attractive working model of a 'Donbus Coal Cutter and Loader' was donated by Mr. G.P. Kozlov, Director, Polytechnic Museum, Moscow, USSR in May, 1968. It is a valuable addition to the Mining Gallery of this Museum.

Popular Science Gallery

Two additional exhibits on sympathetic vibrations and exhibit on Keleidoscope have been placed this year in the Popular Science Gallery.

The final selection of models for the extension of the Popular Science Gallery, and the layout and design of the two rooms of the renovated gallery is in progress. The completely renovated and expanded gallery will be inaugurated in May 1969.

Nuclear Physics Gallery

One illustrative chart 6 m x 1.25 m has been placed in the Nuclear Physics Gallery to show the spectrum of electromagnetic radiations.

Transport Gallery

The preparatory work on Transport Gallery is in progress. The new gallery is expected to open in 1970.

D. Acquisition of models & exhibits

Models and exhibits for different galleries and mobile units as shown in pages (15 -17) have been added to the collection of the museum during the year 1968.

E. EXTENSION ACTIVITIES

i) Mobile Science Museum (MSM)

Apart from the audio-visual exhibits in the existing ten galleries, the museum has been organising various educational activities in and outside museum to popularise science and spread science education among the students and common people of the country.

Conspicuous among them is the Mobile Science Museum, which started functioning beyond the four walls of the museum on November 17, 1965 and proved very effective in imparting mass education in science in rural and urban areas. During the year 1968 4 mobile units operated in places within a radius of 335 km. from Calcutta.

The units are of two types. Type I is the Unit where exhibits are mounted on flexible tubular display stands which are carried by means of truck and the exhibition is set up in a school hall. Type II is the unit where exhibits are mounted on a vehicles viz. a bus or a trailer which serves as the exhibition hall and moves from place to place. Particulars (January to December 1968) of the Units are given below :

MSM Unit I - Theme : 'Our Familiar Electricity';

Type II housed in trailer (Neptune) ; No. of exhibits - 24;
No. of exhibitions - 51; No. of visitors - 62,041;
Areas covered - Districts of Howrah, Hooghly, Burdwan, Nadia,
24-Parganas, Bankura and Purulia in West Bengal;
Distance travelled - 2188 Km.

MSM UNIT - II - Theme : 'Transformation of Energy'

Type II mounted on a Museobus (Venus) of size 30 ft x 8 ft;
No. of exhibits - 28; No. of exhibitions - 55; No. of
visitors - 99, 790; Areas covered - Districts of Birbhum,
Murshidabad, Nadia, 24-Parganas and Hooghly in West Bengal;
Distance travelled - 2746 km.

MSM UNIT - III - Theme : 'Popular Science' (temporary
exhibition)

Type - I; No. of exhibits - 12; No. of exhibitions - 7;
No. of visitors - 58,500; Areas covered - 24-Parganas,
Midnapore and Calcutta; Distance travelled - 150 km.

MSM UNIT - IV - Theme : 'Light & Sight'

This is a new mobile science exhibition unit started touring different schools in the district of Midnapore since March 26, 1968. The new unit, 'Light & Sight', shows, through 24 working exhibits, the function of human eye in comparison with camera, sensitivity of the eye to colours, laws of reflection and refraction, correction of vision by using lenses, microscope, telescope and other optical instruments.

This unit is mounted on a specially designed trailer bus (23 ft x 8 ft x 10 ft) drawn by a separate driving unit, and has a portable electric generator. Other relevant information on the unit is given below :

No. of exhibitions held - 45;
Period of exhibitions : March 26 to December 31, 1968;
No. of visitors : 1,07,380;
Areas covered - Calcutta and districts of Midnapore, Bankura and Burdwan in West Bengal;
Distance travelled - 1577 km; Type II.

11) REGIONAL SCIENCE MUSEUM (RSM)

This museum has been operating a regular Mobile Science Museum for rural areas since November 17, 1965. Mobile Science Museums while travelling through the district areas left deep impression and students and teachers of such areas started sending requests for sustained activities in their areas since the Mobile Units stay in a particular district only for about 2 months. This resulted in the idea of setting up Regional Science Museums for long term in selected places, specially in district headquarters since January 12, 1968.

These small Regional Science Museums will cater to the needs of the people including students of the regions who cannot readily come to visit this museum in Calcutta.

The activities of these Centres (RSM) are similar to those of the parent museum as follows :

1) SCIENCE MUSEUM

A mobil science museum unit of type I is stationed in each RSM. The exhibits are changed from time to time for the benefit of the people of the regions.

2) SCIENCE DEMONSTRATION LECTURE (SDL)

A small vehicle attached to each RSM takes out the educational kits to village schools in the district and demonstration lectures are delivered by trained staff.

3) CREATIVE ABILITIES CENTRE (CAC)

A model CAC is set up in each Regional Museum to offer working opportunities to the students. Other schools are encouraged to start such activities in their schools and regular expert advice is rendered to them.

4) Film shows, Competitive Students' Seminars, Teachers' Training Programme, Model Making Competitions are the miscellaneous activities of each RSM.

Details of the RSM Units in the following districts of West Bengal are given below :

MIDNAPORE

RSM AT MIDNAPORE COLLEGIATE SCHOOL, MIDNAPORE

1) Theme : 'Electricity'; No. of exhibits : 24;
Display period : January 12 to May 8, 1968;
No. of visitors : 12,650; Distance - 146 km.

iv) Creative Abilities Centre

The Creative Abilities Centre which was started by the museum to develop scientific aptitude amongst the students made remarkable progress. At present 130 students from various schools are on the roll in this Centre and on an average ten students come everyday for making models and exhibits. Students prepared electrical, electronic, optical and other scientific instruments including precision electrical meters like suspended coil galvanometer in the Centre. Like previous year, students also worked in the Centre for competing in Science Talent Search Examinations and two of them were successful in the National Science Talent Search and one in Jagadish Bose National Science Talent Search.

The C.A.C. is now extending its services to schools in and around Calcutta and several schools are eager to start their own centres in 1969 with the opening of new session.

Besides this, the rural schools are also encouraged and helped by this museum to set up such Centres in their schools. During 1968, such centres started functioning in about 20 schools in the districts of Purulia, Midnapore, Bankura.

v) Teachers' Training Programme

The Teachers' Training Programme (TTP) is one of the important extension activities of this museum. The programme started in the middle of the year 1968. The main idea of this programme is to provide the science teachers of selected High and Higher Secondary Schools in different districts in and outside Calcutta, with a short-term (8 days) training facilities in suitable places, generally sub-divisional towns, and train them in uses of some basic and important tools, instruments etc. and also in fabrication of a number of scientific models and educational kits. After training, the teachers are expected to open Science Hobby Centres, styled as 'Creative Abilities Centre' in their own schools and guide the participating students in their hobby activities during their leisure hours.

The following training programmes were held during the year 1968 :

<u>Place of training</u>	<u>Training Period</u>	<u>No. of teacher, Trainees</u>	<u>No. of schools participated</u>
1. Manbhum Victoria Institution, Purulia.	Sept. 2 to 10, 1968.	10	5
2. Contai Chandramoni Brahma Girls' High School, Contai, Midnapore.	Sept. 9 to 16, 1968.	14	8
3. Birla Industrial & Technological Museum, Calcutta.	Oct. 8 to 16, 1968.	8	5
4. Hamilton High School, Tamluk, Midnapore.	Dec. 21 to 29, 1968.	8	5
5. Rajkumari Santanamayee Girls' H.S. School, Tamluk, Midnapore.	- do -	9	7

<u>Place of training</u>	<u>Training Period</u>	<u>No. of teacher Trainees</u>	<u>No. of school participated</u>
6. Firla Industrial & Technological Museum, Calcutta.	Dec. 23 to Jan. 2, 1969.	7	5

vi) BITM Competitive Students' Science Seminar

The annual competitive Students' Seminar on the subject : 'Revolution in Agriculture', 'Transplantation on Human Body' and 'Generation of Electric Power' was organised in the museum on September 16, 1968.

In all 32 students from the reputed schools of Calcutta, Bankura, Midnapore and Purulia participated in the museum seminar held with a view to popularise science amongst students. Many educationists and Heads of schools also attended. The seminar was judged by a panel of university professors and attractive prizes were awarded to the successful students. Sm. Manidipa Ghosh of Jhargram Rani Binode Manjuri School and Sm. Lalita Balan of Modern High School, Calcutta won the first prize jointly.

F - Miscellaneous

i) District Science Seminar for students at Midnapore and Purulia.

To promote science education in rural areas, BITM organised two Competitive Students' Science Seminars at its two Regional Science Museums in Midnapore and Purulia on April 15 and 22, 1968 respectively. The subject of the seminars was : 'Science in our Everyday Life' and they were open to the school students of Class IX and X of X and XI of Midnapore and Purulia districts.

In Midnapore 24 different schools of Midnapore district and in Purulia 19 schools of Purulia district participated in the above seminars. Each participant was allowed to speak on the subject either in English, Bengali or Hindi. Many educationists and heads of schools also attended. An encouraging feature of the seminar was that the participants were mostly from interior village schools of two districts.

Certificates and 14 attractive prizes in the form of popular scientific books were awarded to the winners at the end of each seminar. The two first prize winners were specially invited with cost of travel to participate in the BITM Seminar held in September, 1968. These two students won prizes in the BITM seminar also.

ii) School teachers' symposium at Midnapore

A symposium on 'School Science - how it can be improved' organised by BITM, Calcutta, was held in one of its Regional Science Museums at Midnapore on May 6, 1968.

The District Inspector of Schools, Additional Inspector of Schools and 22 teachers including Headmasters from different schools of Midnapore district attended the symposium and actively took part in the deliberations to improve science teaching in schools.

Not only the educational activities of BITM in opening Regional Science Museums and hobby centres etc. in the district towns and rural schools, were highly appreciated but also there was a suggestion that these activities should be further extended by the provision of facilities to the teachers for getting practical training in the preparation of school apparatus etc. during the vacations. The proposal was accepted by BITM and as a result the Teachers Training Programme started.

iii) Practical Training

Training of post-graduate students

Post-graduate students in the Department of Museology, University of Calcutta, attended a short term training course in the BITM, Calcutta from February 12 to 17, 1968. They undertook practical training in different sections of the museum i.e. Workshop, Art & Modelling Section, Galleries, Photography, Library etc. on different aspects of modern museum techniques. The training programme included the following :
 (i) fabrication of exhibits including diorama making ;
 (ii) display; (iii) illumination; (iv) inventory of exhibits;
 (v) practical training on audio-visual instruments etc. Some lectures followed by discussions on the subjects : (a) object and scope of a Science Museum, (b) Classification of exhibits in a Science Museum, (c) Display and illumination in Science Museums (d) Educational activities of a Science Museum
 (e) Function of the library in a Science Museum were also arranged for the students along with projection of slides showing different Science Museums of the world.

Shri C.V. Nageshwara, a students of the Department of Museology, M.S. University of Baroda, attended a short term training course in the museum from 15.4.68 to 4.5.68.

Shri J.R.V. Gunasekera, Curator, Ratnamala Museum, Ceylon also attended a short term training course in the museum from May 17 to June 6, 1968 on different aspects of this museum. He was a trainee under the Colombo Plan.

iv) Technical Assistance rendered to other organisations

1. Netaji Research Bureau, Calcutta was provided with estimate and drawings for reorganisation of their galleries with a view to improving display arrangements.
2. Photographs of the early telegraph engineers for Victoria Memorial, Calcutta.
3. Fabrication of a set of educational kits for National Council of Educational Research and Training, New Delhi (UNESCO Secondary Science Teaching Project) - Total 400 kits.
4. A telescope on loan basis for use of Sreemanthi Bai Memorial Govt. Museum, under the Govt. of Mysore, Mangalore-4.
5. Repair, installation and commissioning of Industrial Television Unit in Chandrapura Thermal Power Station of DVC.
6. Fabrication of models for Visvesvaraya Industrial & Technological Museum, Bangalore.
7. Fabrication of two models for Banaras Hindu University, Banaras.

v) Film Shows

The necessity of adopting audio-visual methods in imparting knowledge to the people is well recognised. Popular Scientific and Technical film shows are held in the museum 8 times a week, 4 of them being reserved for school students. These are well attended. Besides the above regular shows some special film shows were arranged in the museum with the films borrowed from United States Information Services, The British Information Services, different

Consulates, Film Division, Govt. of India etc. In 1968, 445 film shows were held in the museum auditorium and 181 shows were held in rural areas through the mobile units and regional museums.

vi) Film festivals

MITM organised three film festivals at its Regional Science Museum sites as under :

<u>Place</u>	<u>Period</u>	<u>Persons attended</u>
Purulia	Sept. 18 to 23, 1968	7,100
Bankura	Dec. 13 to 19, 1968	13,900
Contai	Dec. 16 to 22, 1968	3,845
Total		<u>24,845</u>

vii) Sky observation Programme

A special programme of sky observation through 3" telescope for about 60 members of Amateur Astronomers' Association, Calcutta was arranged in museum premises on December 19, 1968.

G. Special Occasions

i) Silver Jubilee Celebrations of CSIR

"Today science museums have come to occupy their rightful place in our plan of education. They have become means for making science attractive and understandable even to those who have not had the privilege of a formal education or training in science. They had become places where one could go to learn about the secrets of a common place objects and occurrences, not as miracles and wonders but as facts within human comprehension" - remarked Shri Dharma Vira, the Governor in the Silver Jubilee Celebrations of the Council of Scientific & Industrial Research in Birla Industrial and Technological Museum, Calcutta on Saturday, August 10, 1968. The Governor inaugurated a seminar on the 'Role of Museums in Education' in the auditorium of the museum. Dr. S.N. Sen, Vice-Chancellor, Calcutta University, Dr. Bhabatosh Dutta, Secretary, Department of Education, Govt. of West Bengal and Prof. D.P. Ghosh, President, West Bengal Museums Association spoke in this seminar.

The Governor emphasised on attracting ordinary citizens to the working of Nature and the facts of life and supplying essential materials and facilities for research purposes. He observed that the science teachers, journalists and science museums should take greater responsibility to do this job adequately. He praised the work of the Birla Industrial & Technological Museum in organising various galleries and mobile units which are now serving the entire State of West Bengal and parts of Bihar.

Dr. S.N. Sen, Vice-Chancellor of Calcutta University presided over the function. He stressed that the museums should come forward to serve the purpose of education more effectively in our country. While welcoming the guests Shri S.K. Ghose, Curator-in-Charge of the museum gave an account of the museums' various activities including the organisation of extensive village programmes throughout the State of West Bengal.

Shri S.C. Chatterji, Administrative Officer of the museum received the Silver Jubilee Service Award for completing 25 years of service in CSIR. The museum arranged two days celebration programme with a special exhibition of 'Work, Power and Energy'; special film and television shows.

The museum remained open from 10 a.m. to 8 p.m. on Sunday, August 11, 1968.

ii) Anniversary celebrations

The Ninth Anniversary of Birla Industrial & Technological Museum was celebrated during April 30 to May 5, 1968.

The most interesting feature of the programme was an exhibition of a remote control motor car which moved without driver with the help of transmitted radio signals. The programme also included, among others, Children's art & science exhibition, Children's fair, visitors participation in television programme, Exhibition of a 'robot' with electronic control, Film shows, Puppets, magic and funs of science, recording of visitors voice on tape-recorders etc.

During the anniversary week the museum remained open to visitors from 10.00 a.m. to 8.00 p.m.

H. Attendance

(A) Indoor

Visitors to the Museum - 2,17,136 including 530 organised groups covering 20,721 students.

The number of visitors is the highest so far compared to 2,16,441 of 1967.

(B) Outdoor

(a) Mobile Science Museums	-	3,27,631 visitors
(b) Regional Science Museums	-	54,870 "
(c) Film festivals in regional museums	-	24,845 "
(d) Science Demonstration Lectures	-	4,520 students
(e) Occasional film shows in rural areas	-	5,000 visitors
(f) Students' Science Seminars in the districts	-	50 students
(g) Teachers' Training Programme	-	41 teachers

4,16,357

I. Honours and Awards

- (a) BITM participated in the First Model Engineers' Exhibition, 1968, organised by the Society of Model Aeronautical Engineers of India Ltd, and its model of Stephenson Rocket Locomotive - 1829 (size - 2'-10" length, 1'-0" breadth and 2'-0" height) was adjudged the best in the Engineering category.

There were 18 exhibits in the Engineering category of Exhibition held in the Academy of Fine Arts, Calcutta from January 12 - 15, 1968. Besides BITM, M/s. Jessop & Co., Eastern Railway, Bengal Engineering College, M/s. Blue Star Oven Co. and Hind Motors participated in it.

BITM was awarded a trophy and a certificate of merit.

- (b) Shri S.K. Ghose, Curator-in-Charge, visited USSR at the invitation of the Soviet Committee of ICOM and participated in the conference of International Council of

Museums Committee for Education and Cultural Activities held in Leningrad and Moscow during May 14 - 21, 1968. He was elected Chairman for one of the sessions of the conference on - the role of museums in education and cultural activity. During his stay in the Soviet Union, Shri Ghose visited important museums in the country including the Polytechnic Museum and Hermitage Museum. He also made special studies of the programming and performances of the mobile units of the museums in USSR.

(c) Shri S.K. Ghose, Curator-in-Charge, has been elected :

- i) a member of the International Committee for Education and Cultural Action of ICOM.
 - ii) a member of the National Council for Museum Education under ICOM.
 - iii) a member of the Editorial Board of the 'Journal of Indian Museums'.
 - iv) a Vice-President of the Museums Association, West Bengal.
- (d) Shri R.C. Chunder, Exhibition Officer and Shri C.S. Pai, Curator (since resigned) have been elected members of the Executive Committee of Museums Association, West Bengal.
- (e) Miss. I.C. Vora, S.S.A. has been elected a member of the Executive Committee, Museums Association of India.
- (f) Shri S.K. Ghose, Curator-in-Charge, was invited as a Judge in the All India Science Fair and Model Making Competition organised by the Acharya Prafulla Chandra Ray Bijnan Bhavan, Calcutta.

J. Lecture and Publications

1) Lectures :

Shri S.K. Ghose, Curator-in-Charge, delivered the following lectures during the year under review :

- a) 'Mobile Science Museum' - March 29, 1968 - arranged by the Museums Association, West Bengal, for museum personnel of Calcutta.
- b) 'Museums and the School' - May 16, 1968, International Seminar on Museum Education, Leningrad, U.S.S.R.
- c) 'Early Electric Telegraph' - Institute of Electronic Engineers, Calcutta.
- d) 'Popularisation of Science' - Rotary Club of South West Calcutta.
- e) 'Role of the Museum in Modern Society' in Rotary Club, Belur - December 6, 1968.
- f) 'Role of the Museum in Modern Society' by Shri S.C. Chatterji, Administrative Officer, in Rotary Club, Belur on December 6, 1968.
- g) Mr. G.P. Kozlov, Director, Polytechnic Museum, Moscow, delivered a popular lecture on 'Polytechnic Museum, Moscow', illustrated with slides on March 6, 1968 in the museum auditorium.

11) Publications :

- a) 'A New Gallery on Mining, Birla Industrial & Technological Museum, Calcutta' by Shri S.K. Bagchi, Curator, Published in 'CURATOR' Vol.XI, No. 1, 1968.
- b) 'Mobile Science Exhibition' by Shri S.K. Ghose, Curator-in-Charge, published in July-September issue of 'MUSEUM', a UNESCO journal.
- c) 'Museums and the Public' - by Shri S.K. Ghose, Curator-in-Charge, published in ICOM NEWS, Third issue, 1968.
- d) Activities of BITM - a bicolour folder published in English, Hindi and Bengali (25000 copies) on the occasion of the Silver Jubilee celebrations of CSIR.
- e) Seasons Greetings Card showing views of the museum building and a mobile unit were printed.
- f) Calendar of Events - a bicolour folder published in English and Bengali in November 1968 to indicate the programmes in the museum and its regional and mobile units. This will be a regular quarterly publications.

K. Distinguished Visitors

Name

Date of visit

(1) Mr. P. Stanky Briggs,
Proctor Deptt.,
University of Leeds, U.K.

January 21, 1968..

(2) Mr. G.P. Kozlov, Director, Polytechnic Museum, Moscow was in BITM, Calcutta during the period February 28 to March 10, 1968 at the invitation of CSIR under Indo-Soviet Cultural Programme. During his stay in Calcutta Mr. Kozlov exchanged information and ideas about museums. He also visited galleries, workshop, Art & Modelling Section and Creative Abilities Centre etc. run by the museum. Besides, to have a practical idea about the varied educational activities of BITM in rural areas Mr. Kozlov was taken to the sites of museum mobile science exhibition units at three districts of West Bengal as follows : (a) mobile Unit No. I (Our Familiar Electricity) at Nadia; (b) mobile Unit No. II (Transformation of Energy) at Murshidabad; (c) mobile Unit V and Creative Abilities Centres set up in different schools in the districts of Midnapore. He also inspected in museum premises the new mobile Unit (Light & Sight) mounted on a newly built trailer bus which was scheduled to leave for schools in Midnapore villages. On March 6, 1968 Mr. Kozlov also delivered a lecture, illustrated with slides, in the museum auditorium on 'Polytechnic Museum, Moscow' before museum personnels of Calcutta".

(3) Mr. Frank A. Taylor, Director, United States National Museum, Washington was in the museum during the period April 25 to 28, 1968. He also visited on April 27, 1968 the Regional Science Museum at Midnapore town and Mobile Science Exhibition at Nekursini in Midnapore district, both organised by this museum.

(4) Shri Dharma Vira,
Governor of West Bengal

August 10, 1968

(5) Dr. S.N. Sen,
Vice-Chancellor,
University of Calcutta.

August 10, 1968

<u>Name</u>	<u>Date of visit</u>
(6) Dr. Bhabatosh Dutta, Secretary, Deptt. of Education, West Bengal.	August 10, 1968.
(7) Prof. D.P. Ghosh, President, West Bengal Museums Association.	August 10, 1968.
(8) Mr. Francis Wattier, Secretary General of International Co-ordinating Committee for the Presentation of Science and the Development of out of school Scientific Activities, Brussels, Belgium.	November 29, 1968.
(9) Mizo delegation, organised by the Ministry of Information & Broadcasting, Govt. of India.	February 11, 1968.

L. Staff

The present sanctioned strength of staff is given below :

Officers (Technical)	- 8
Officers (Non-technical)	- 3
Class III (Technical)	- 100
Class III (Non-technical)	- 35
Class IV (Technical)	- 36
Class IV (Non-technical)	- 42
Total	- <u>224</u>

M. General information about the museum

Decorration of the Reception Hall

5 relief sculptures of the following scientists now adorn the southern wall of the Reception Hall :

Archimedes, Galeleo Galelei, Isaac Newton, D.I. Mendeleyev, Albert Einstein.

These were prepared departmentally.

Library

The stock of the library comprises books on science & technology. In view of the dearth of good technical public libraries in the vicinity, it was considered fit to open the stock to outsiders so that maximum benefit could be derived from the stock. So, the library was opened to the public on July 6, 1966 and so far 597 members mostly students have enlisted as members of the library and have been using it as a reading room to their advantage.

The stock of books, periodicals, films, etc. in the library are as under :

Books	4010
Important journals received	88
Technical films	145
Pamphlet	1824
Bound Periodicals	320
Publications issued during the year	2900

Museum hours

Open from 10.00 a.m. to 5.00 p.m. on all days except Mondays.

Admission

Admission free except Sundays and holidays.

Television Shows

Thrice daily

Publications

- 1) Illustrated folders on the activities of the museum in Bengali, English and Hindi.
- 2) Museum programme of events in Bengali and English - November - December, 1968.

N. (A) MODELS AND EXHIBITS FABRICATED IN THE MUSEUM WORKSHOP FOR THE MUSEUM GALLERIES AND EXTENSION ACTIVITIES.

(For MSM Unit - 4)

1. World of colours as seen by man.
2. Colours with different filters.
3. Splitting white light by prism and rainbow.
4. Newtons disc and subtraction of colours.
5. Ultraviolet light.
6. Family of light..
7. Comparison of Eye with Camera.
8. Aperture control and iris.
9. Perception.
10. Persistence of Vision.
11. Error in sight - half hidden letters.
12. Optical illusion.
13. Distorted mirrors.
14. Reflection on plane mirror and periscope.
15. Convergence in Concave mirror.
16. Prism convex lens and concave lens.
17. Convergence in convex lens-Sunburn.
18. Total internal reflection.
19. Farsightedness and remedy.
20. Nearsightedness and remedy.
21. Magnifying lens and simple microscope.
22. Stroboscope.
23. Velocity of light (lightning).
24. Demonstration of Telescope.

25. Working model on Ohm's law.
26. Working model on Operation of Telephone spares.
27. Working model on Generation of Power.
28. Working model on Tesla coil.
29. Working model on Repulsion by magnet.
30. Fabrication of working models and exhibits for School Demonstration Lecture

- a) Motors and Generators - 2 Sets) Total - 64 exhibits
- b) From Heat to Heat Engines - 2 Sets)

94. Prototype exhibits for Teachers Training Programme - Total 5 exhibits.

- a) Two transistor Radio receiver - 1 No.
- b) Expansion of metal by heat - 1 No.
- c) Bi metallic strip - 1 No.
- d) Gas Thermometer - 1 No.
- e) Electric meter, Repulsion type.

100. A model of Kitty Hawk Aeroplane.
101. Model on Stephenson Rocket Engine.

(For MSM Unit - 6)

102. Model on Translation and Rotation.
103. Model on Cycloid.
104. Model on Minimum time path.
105. Model on Speed and velocity.
106. Model on Acceleration.
107. Model on Guenea and Feather experiment.
108. Model on Double ended cone.
109. Model on Newton's first law of motion.
110. Model on Inertia.
111. Model on Transfer of momentum.
112. Model on Pressure.
113. Model on Centrifugal force.
114. Model on Action and reaction.
115. Model on Moment.
116. Model on Force $P = MF$.
117. Model on Centre of gravity.
118. Model on Mass and Weight.
119. Model on Governor and Centrifuge.
120. Model on Action of Jet.
121. Model on Pressure turbine.
122. Model on Equilibrium.
123. Model on Friction.
124. Model on Sliding friction.

125. Trevithik Road locomotion.
126. Model of Museobus.
127. Model of reflecting telescope.
128. Model of Hover craft.

(For MSM Unit -7)

129. Model on Work.
130. Model on Energy of elevated body.
131. Model on Energy of spring.
132. Combined potential and Kinetic energy.
133. Combined potential and Kinetic energy (wounding spring)

134. Water turbine.
135. Model on Lever I (Part I)
136. Model on Lever I (Part II)
137. Model on Lever II
138. Model on Lever III
139. Palm tree dugout lever.
140. Model on Wheel and axle.
141. Model on Wheel and axle Part 2.
142. Model on Spinning wheel.
143. Model on Inclined plane.
144. Model on Inclined plane and wedge.
145. Model on Inclined plane and screw.
146. Model on Pulley (rope belt).
147. Model on Persian wheel.
148. Model on Gears.
149. Model on Wheel and axle part 1.

(For MSM Unit - 8)

150. Conic sections by cutting a cone at different planes.
151. Model on mathematics of hunting of a bear.
152. Latitude and Longitude.
153. Model on Algebra $(a+b)^2$
154. Model on Algebra $(a-b)^3$
155. Geometry area of a triangle.
156. Sum of the angles of a triangles equal to 180°
157. Ramhari and Banker.
158. Area of a parallelogram.
159. Which way is shorter.
160. The handkerchief of a boy.
161. Periphery and area of a circle.
162. Model on a legal cheating.
163. Basic ideas of trigonometry.
164. How high is the palm tree.
165. The tower of Varanasi.
166. Volume of different shaped bodies.
167. A cane chair knows mathematics.
168. The dinner in a hotel.
169. Mathematical puzzles.
170. When did man learn counting.
171. Invention of zero is the first step of mathematics.
172. Addition and subtraction by a machine.
173. Tie up the earth by a rope.
174. Who are these mathematicians.

B. MODELS AND EXHIBITS MADE IN THE MUSEUM WORKSHOP FOR OUTSIDE ORGANISATIONS

1. Educational kits for NCERT, Delhi
(UNESCO Science education project) - 400 exhibits.
2. Model of Board & Pillar and Longwall mining.
(for Banaras Hindu University, Varanasi.)
3. Model of Mecumore Cutter loader
(for Banaras Hindu University, Varanasi.)
4. Model of New Commen's Mine Pump
(for Visvesvaraya Industrial & Technological Museum, Bangalore.)

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Chief Curator,
Industrial & Technological Museums,
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Technological Museum,
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11. Shri S. K. Ghose,
Senior Curator,
Birla Industrial & Technological Museum,
19A, Gurusaday Road,
Calcutta-19.

Scientific Sub-Committee

- | | | | |
|--|---|---|----------|
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| 2. Prof. G.C. Sen,
Jadavpur University. | - | | Member |
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(Shri A.K. Bhattacharyya) | - | | " |
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| 5. Director of Public
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West Bengal.
(Shri P.C. Mukherjee) | - | | " |
| 6. Chief Curator,
Industrial & Technological
Museums,
C/o. Visvesvaraya Industrial
& Technological Museum,
Bangalore-1.
(Shri A. Bose) | - | | " |
| 7. Senior Curator,
Birla Industrial &
Technological Museum,
Calcutta-19.
(Shri S.K. Ghose) | - | | " |

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4. Secretary,
Council of Scientific & Industrial Research.
5. F.A. to CSIR,
New Delhi.
6. Shri A. Bose,
Chief Curator,
Industrial & Technological Museums,
C/o. Visvesvaraya Industrial &
Technological Museum,
Bangalore.
7. Shri S.K. Ghose,
Senior Curator,
Birla Industrial & Technological Museum,
Calcutta.